

عنوان مقاله:

P-glycoprotein gene expression in drug resistance breast cancer cells treated with benzyloquinoline alkaloids

محل انتشار:

نهمین کنگره بین المللی سرطان پستان (سال: 1392)

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خلاصه مقاله:

Over-expression of P-glycoprotein (p-gp) in tumor cells is one of the most important mechanisms leading to multidrug resistance (MDR), which impairs the efficacy of chemotherapy by expelling a variety of lipophilic anti-cancer drugs. During a screening of MDR reversal agents among a family of benzyloquinoline alkaloids some identified with moderate to strongly potent cytotoxicity in anti-cancer drug resistant subline, MCF-7/ADR, derived from MCF-7 cell line. Here we investigated the gene expression level of p-gp in both resistant and parental cells. MCF7/ADR and MCF7 were treated with different concentrations of the pure natural alkaloids for 48 h, the resistant cells in presence of doxorubicin. Total RNA extracted from each sample was converted to cDNA by reverse transcriptase and p-gp copy numbers were quantified by real-time Rotogene technology using. Expression levels were normalized relative to the transcription level of $\beta 2$ -microglobulin as a housekeeping gene. After 48 hours treatment by some of the alkaloids, expression of the target gene was down-regulated considerably and in concentration dependent manner. These results suggest that those alkaloids with stronger cytotoxicity effects on resistant cells can reverse MDR by multiple mechanisms at least in part through down regulation of p-gp expression. In conclusion natural alkaloids are valuable compounds to investigate their effectiveness against drug-resistance in more detail and promising start point to develop new drugs.

کلمات کلیدی:

drug resistance, natural alkaloids, P-glycoprotein, RT-PCR

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